CLAIMS

1 An optical pick-up device comprising:

a first light emitting element for emitting light beams having a first wavelength;

a second light emitting element for emitting light beams having a second wavelength;

a third light emitting element for emitting light beams having a third wavelength;

a first optical system including a first object lens, and serving to converge, by the first object lens, either one of light beams which have been emitted from the first to third light emitting elements to irradiate the light beams thus converged onto the optical disc;

a second optical system including a second object lens, and serving to converge, by the second object lens, either one of light beams which have been emitted from the first to third light emitting elements to allow the light beams thus converged to be incident on the optical disc;

an object lens drive unit including a bobbin for holding the first and second object lenses, and serving to allow the bobbin to undergo drive displacement in three axes directions of a focusing direction which is a direction perpendicular to the recording surface of the optical disc, a tracking direction which is a substantially radial direction of the optical disc, and either

one of a radial tilt direction in which movement is performed in a circular arc form on the axis of the radial direction and a tangential tilt direction in which movement is performed in a circular arc form on the axis of a tangential direction which is a direction perpendicular to the radial direction; and

aberration correcting means for correcting comatic aberration of the second optical system relatively taking place with respect to the first optical system in which comatic aberration in the other direction of the radial tilt direction and the tangential tilt direction, which is not controlled by the object lens drive unit, is corrected.

2 The optical pick-up device according to claim 1,

wherein the comatic aberration correcting means corrects comatic aberration by changing refractive index of light beams transmitted therethrough.

3 The optical pick-up device according to claim 1,

wherein the first wavelength is about 405 nm, the second wavelength is about 660 nm, and the third wavelength is about 785 nm.

4 The optical pick-up device according to claim 3,

wherein light beams having the first wavelength are incident on the first object lens, and light beams having the second and third wavelengths are incident on the second object lens.

5 The optical pick-up device according to claim 1,

wherein the first and second object lenses are held at the bobbin in the state arranged in the tangential direction.

6 The optical pick-up device according to claim 1,

wherein the aberration correcting means is liquid crystal correcting device.

7 An optical disc apparatus comprising;

disc rotational operation means for performing rotational operation of an optical disc; and

an optical pick-up device for scanning, by light beams, the signal recording surface of the optical disc operated by the disc rotation operation means to perform recording or reproduction of information,

the optical pick-up device comprising:

a first light emitting element for emitting light beams having a first wavelength,

a second light emitting element for emitting light beams having a second wavelength,

a third light emitting element for emitting light beams having a third wavelength,

a first optical system including a first object lens, and serving to converge, by the first object lens, either one of light beams which have been emitted from the first to third light emitting elements to irradiate the light

beams thus converged onto the optical disc,

a second optical system including a second object lens, and serving to converge, by the second object lens, either one of light beams which have been emitted from the first to third light emitting elements to allow the light beams thus converged to be incident on the optical disc,

an object lens drive unit including a bobbin for holding the first and second object lenses, and serving to allow the bobbin to undergo drive displacement in three axes directions of a focusing direction which is a direction perpendicular to the recording surface of the optical disc, a tracking direction which is a substantially radial direction of the optical disc, and either one of a radial tilt direction in which movement is performed in a circular arc form on the axis in the radial direction and a tangential tilt direction in which movement is performed in a circular arc form on the axis of a tangential direction which is a direction perpendicular to the radial direction, and

aberration correcting means for correcting comatic aberration of the second optical system relatively taking place with respect to the first optical system in which comatic aberration in the other direction of the radial tilt direction and the tangential tilt direction, which is not controlled by the object lens drive unit, is corrected.

8 The optical disc apparatus according to claim 7,

wherein the comatic aberration correcting means changes refractive

index of light beams transmitted therethrough to thereby correct comatic aberration.

9 The optical disc apparatus according to claim 7,

wherein the first wavelength is about 405 nm, the second wavelength is about 660 nm, and the third wavelength is about 785 nm.

10 The optical disc apparatus according to claim 9,

wherein light beams having the wavelength are incident on the first object lens, and light beams having the second and third wavelengths are incident on the second object lens.

11 The optical disc apparatus according to claim 7,

wherein the first and second object lenses are held on the bobbin in the state arranged in the tangential direction.

12 The optical disc apparatus according to claim 7,

wherein the aberration correcting means is liquid crystal correcting device.

13 A method of controlling an optical pick-up device,

the optical pick-up device comprising:

a first light emitting element for emitting light beams having a first wavelength;

a second light emitting element for emitting light beams having a second wavelength;

a third light emitting element for emitting light beams having a third wavelength;

a first optical system including a first object lens, and serving to converge, by the first object lens, either one of light beams which have been emitted from the first to third light emitting elements to irradiate the light beams thus converged onto an optical disc;

a second optical system including a second object lens, and serving to converge, by the second object lens, either one of light beams which have been emitted from the first to third light emitting elements to allow the light beams thus converged to be incident on the optical disc;

an object lens drive unit including a bobbin for holding the first and second object lenses, and serving to allow the bobbin to undergo drive displacement in three axes directions of a focusing direction which is a direction perpendicular to the recording surface of the optical disc, a tracking direction which is a substantially radial direction of the optical disc, and either one of a radial tilt direction in which movement is performed in a circular arc form on the axis in the radial direction and a tangential tilt direction in which movement is performed in a circular arc form on the axis in a tangential direction which is a direction perpendicular to the radial direction; and

aberration correcting means for correcting comatic aberration of the second optical system relatively taking place with respect to the first optical

system in which comatic aberration in the other direction of the radial tilt direction and the tangential tilt direction, which is not controlled by the object lens drive unit, is corrected,

the control method comprising:

allowing the bobbin to undergo drive displacement on the basis of control signals in the focus direction and in the tracking direction, and a control signal in either one direction of the radial tilt direction and the tangential tilt direction to control positions and attitudes with respect to the optical disc of the first and second object lenses which have been held on the bobbin; and

correcting comatic aberration of the second optical system by the aberration correcting means.

14 The control method for optical pick-up device according to claim 13,

wherein the aberration correcting means is liquid crystal correcting device, and serves to apply a voltage to the liquid crystal correcting device to control refractive index to correct comatic aberration.